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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,957	10/16/2006	Yasuyuki Naito	41324	6999

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EXAMINER	
SUMMONS, BARBARA	
ART UNIT	PAPER NUMBER
2817	

NOTIFICATION DATE	DELIVERY MODE
07/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/599,957	NAITO, YASUYUKI	
	Examiner	Art Unit	
	BARBARA SUMMONS	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/16/2006 & 4/02/2007 (pre-amdts)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19,20 and 24-29* is/are rejected.

7)☒ Claim(s) *21-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/16/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the Search Report, although they were also listed on a form PTO-1449 of an information disclosure statement, is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed.

The IDS received 10/16/2006 does not meet items (1) and (2) above, since no copies of the foreign references and the non-patent literature publications from the International Search Report were provided.

Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

Drawings

2. The drawings were received on 4/02/07. These drawings are approved and entered.

Specification

3. The substitute specification filed 10/16/06 has been approved and entered.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 19, 20, 24-26, 28 and 29 are rejected under 35 U.S.C. § 102(b) as being anticipated by Burns et al. U.S. 5,550,516.

Regarding claims 19 and 20, Fig. 12b of Burns et al. discloses an electromechanical filter (see col. 10, lines 37-38 and col. 1, lines 38-41) comprising: a microvibrator beam 144 that is adapted to resonate with an input signal received at drive electrode 146; a sensing electrode 148 that is arranged at a predetermined interval to the microvibrator; and a quantum device being the MOSFET 26 (see col. 8, lines 16-20 and col. 4, line 5) that has a source 36 and a drain 24 and that senses a change in an electrostatic capacity Cs between the microvibrator and the sensing electrode (see e.g. col. 1, lines 56-58 and col. 3, line 64 to col. 4, line 3). Regarding the structure of the microvibrator beam, the sensing electrode and quantum device/ MOSFET, Fig. 2a shows one integral electrode 18,28 that functions as both the sensing electrode 18 (equivalent to 148 in Fig. 12b see also col. 11, lines 12-19) and as a gate electrode 28 of the quantum device/MOSFET transistor (see col. 4, lines 53-56) such

that the entire integral electrode structure 18,28 is considered to be the sensing electrode, therefore meeting the feature of claim 19 that the sensing electrode "is an electrode provided between the source and the drain of the quantum devices" as can be seen in Fig. 2a where the portion 28 of the sensing electrode extends between the source and the drain of the quantum device.

Regarding claims 24 and 25, the microvibrator 144 has a driving electrode 146 arranged at a predetermined interval to the microvibrator; and wherein the microvibrator is excited by an electrostatic force Cd generated between the microvibrator and the driving electrode, when an input signal Vi is input into the driving electrode. Regarding claims 26 and 28, the microvibrator and the quantum device/MOSFET are formed on a same substrate as shown in Fig. 2 (see also col. 1, lines 63-65), and the sensing electrode is a shallow doped polysilicon (see col. 4, lines 53-55) which is a semiconductor material. Regarding claim 29, the quantum device/MOSFET also functions as an amplifying unit that is provided on a signal output port Vo side (see e.g. col. 10, lines 42-46 and col. 11, lines 15-18).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 27 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns et al. U.S. 5,550,516 taken alone.

Burns et al. discloses the invention as discussed above, except for explicitly disclosing that the microvibrator beam and the sensing electrode of the quantum device are formed of the same material.

Burns does disclose that the sensing electrode is a shallow doped polysilicon of a "polyshell" (see col. 4, lines 53-57 and also e.g. Fig. 11b with col. 9, line 66 to col. 10, line 4+), and that the microvibrator is an n-type doped beam (see col. 4, line 45), while not explicitly disclosing that it is a doped polysilicon beam. Burns also discloses forming beams from a micromachined piece of silicon (see col. 8, lines 53-54) and forming its devices by using polysilicon films (see col. 8, line 47).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electromechanical filter of Burns (Fig. 12b and Fig. 2a), if even necessary, by having provided that the microvibrator beam and the sensing electrode would have been formed of a same material being polysilicon, because Burns explicitly discloses that the sensing electrode is doped polysilicon (see col. 4, lines 53-57) and discloses that the microvibrator is an n-type conductor (col. 4, line 45) and that the device can be formed of polysilicon films (col. 8, line 47), thereby suggesting that the n-type conductor microvibrator beam would have obviously included n-type doped polysilicon as also would have been known by one of ordinary skill in the art as an n-type conductor usable therewith.

Allowable Subject Matter

8. Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lin et al. U.S. 5,589,082 discloses that it would have been known to form microelectromechanical filters and transistors on a same substrate (see e.g. the abstract, lines 7-9) including a capacitance sensing MOSFET 510 (see Fig. 8 and col. 9, lines 63-66).

Zurn U.S. 6,621,134 discloses a microelectromechanical filter on a same substrate with a MOSFET (see e.g. Figs. 3A-H, Fig. 4, Fig. 15 and Figs. 18A-G), wherein forming capacitive MEMS sensors and electrostatic MEMs actuators on a same chip (see col. 20, lines 54-60) provides advantages of miniaturization by means of increased integration of parts as well as increased sensitivity of the capacitive sensors operating to detect changes of a few femto-Farads, due to minimization of parasitic wiring (see col. 21, lines 48-67).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA SUMMONS whose telephone number is (571)272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bs
June 25, 2008

/Barbara Summons/
Primary Examiner, Art Unit 2817